In the Claims

Claims 4, 6, 9-12, 20, 24, 26-30, 32, 38-41, 43-46, 48-49, 57-58 and 60-64 have been amended as follows:

Claims 1-3 (previously canceled)

4. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier; and

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer [[;]].

~~wherein the conducting layer comprises an ultra-thin metal film.~~

5. (previously canceled)

6. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the light energy conversion layer comprises a plurality of different photosensitive means to maximize capture of the incid nt light spectrum.

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Claims 7-8 (previously canceled)

9. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier; and

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the light energy conversion layer has a light receiving surface, and wherein the light receiving surface is patterned to provide increased surface area.

10. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the light energy conversion layer is porous to provide increased surface area.

11. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side th reof;

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a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the charge separation layer is porous to provide increased surface area.

12. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the charge separation layer is structured to provide increased surface area.

Claims 13-19 (previously canceled)

20. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer;

the conducting layer providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation ~~layer~~ layer;

wherein the conducting layer and the charge separation layer define a metal-insulator-metal junction.

21. (previously canceled)

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22. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer;

the conducting layer providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation ~~layer~~ layer;

wherein the charge separation layer comprises a semiconductor of a ~~predetermined~~ type, and further including a semiconductor of the opposite type positioned between the charge separation layer and the conducting layer to provide an increased barrier height and photovoltage.

23. (previously canceled)

24. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the charge separation layer comprises an organic semiconductor.

25. (previously canceled)

26. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer;

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the conducting layer providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation ~~layer~~ layer;

wherein the charge separation layer comprises an insulator/semiconductor multi-layer.

27. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the charge separation layer is formed from template molecules to provide an increased surface area.

28. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the charge separation ~~conducting~~ layer is formed from template molecules to provide an increased surface area.

29. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive m ans;

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a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the light energy conversion layer is formed from template molecules to provide an increased surface area.

30. (currently amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer, wherein the conducting layer and the charge separation layer define a Schottky barrier;

the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

wherein the light energy conversion layer has a light receiving surface, and wherein the light receiving surface is provided with anti-reflection coating to reduce reflective light.

31. (previously canceled)

32. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one sid thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

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the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation layer ~~layer wherein the front contact layer and the semiconductor charge separation layer define a specific Schottky barrier which maximizes output power~~.

Claims 33-37 (previously canceled)

38. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is formed from a material selected from the group consisting of merbromin, 0-phenylxanthene, and iron cyanate.

39. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first sid thereof;

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a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is formed from a material including at least one organic dye.

40. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is formed from a material characterized by nanoclusters.

41. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

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a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is formed from a material characterized by nanostructures.

Claim 42 (previously canceled)

43. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is formed from a material including at least one metal cyanate.

44. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitiv means;

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an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is formed from a material including at least one metal photocyanate.

45. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer comprises a plurality of different photosensitive means to maximize capture of the incident light spectrum.

46. (curr ntly amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

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a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer comprises a plurality of photosensitive means structures.

Claim 47 (previously canceled)

48. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer has a light receiving surface, and wherein the light receiving surface is patterned to provide increased surface area.

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49. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer is porous to provide increased surface area.

Claims 50-56 (previously canceled)

57. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an lectrically conductive metal back contact secured to th second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the semiconductor charge separation layer comprises an organic semiconductor.

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58. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the semiconductor charge separation layer comprises an insulator formed on an organic conductor.

Claim 59 (previously canceled)

60. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting front contact layer having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the front contact layer;

the front contact layer providing ballistic transport of electrical energy from the light energy conversion layer to the charge separation layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the charge separation ~~layer~~ layer; and

wherein the semiconductor charge separation layer comprises an insulator/semiconductor multi-layer.

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61. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the semiconductor charge separation layer is formed from template molecules to provide an increased surface area.

62. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the semiconductor charge separation ~~conducting~~ layer is formed from template molecules to provide an increased surface area.

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63. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the semiconductor charge separation ~~conducting~~ layer is formed from template molecules to provide an increased surface area.

64. (currently amended) A~~The~~ multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting metal film ~~front contact layer~~ having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the metal film, wherein the metal film and the semiconductor charge separation layer define a Schottky barrier ~~front contact layer~~;

the metal film for ~~front contact layer~~ providing ballistic transport of electrical energy from the light energy conversion layer to the semiconductor charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; ~~and~~

an electrically conductive metal back contact secured to the second side of the semiconductor charge separation ~~layer~~ layer; and

wherein the light energy conversion layer has a light receiving surface, and wherein the light receiving surface is provided with anti-reflection coating to reduce reflective light.

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65. (allowed) A multi-layer solid-state device for producing electrical power from light comprising:

an ultra-thin electrically conducting film layer having first and second sides;

a light energy conversion layer mounted on the first side of the ultra-thin film layer and comprising a PS-MIM photosynthesizer layer;

a thin layer of insulating material secured to the second side of the ultra-thin film layer and comprising opposite sides;

a two sided semiconductor charge separation layer having one side thereof secured to the side of the insulation layer opposite from the side thereof which is secured to the ultra-thin film layer; and

an ohmic back metal contact secured to the second side of the semiconductor charge separation layer.

66. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein a conduction band edge and the thickness of the insulation layer permit charge carriers from the light energy conversion layer to move to the back contact while preventing current flow in the opposite direction thereby maximizing output power.

67. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the semiconductor charge separation layer is formed from a material which functions in combination with the insulation layer and a conduction band edge to allow charge carriers to move from the light energy conversion layer to the back contact while preventing current flow in the opposite direction to maximize output power.

Claim 68 (previously canceled)

69. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein ~~the~~ a front contact layer comprises an ultra-thin metal film layer having a thickness of between about .5 and about 1000 nm and is formed from a material selected from the group consisting of gold and platinum.

70. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the semiconductor charge separation layer is formed from a material selected from the group consisting of titanium dioxide, tantalum oxide, and tungsten oxide.

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71. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer is formed from a material selected from the group consisting of merbromin, 0-phenylxanthene, and metal cyanates.

72. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer is formed from a material including at least one organic dye.

73. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer is formed from a material characterized by nanoclusters.

74. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer is formed from a material characterized by nanostructures.

75. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer is formed from a material comprising a thin film semiconductor.

76. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer comprises a plurality of different photosensitive means to maximize capture of the incident light spectrum.

77. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the conducting layer is formed from a metal.

78. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the conducting layer is formed from a non-metal conductor.

79. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the conducting layer is formed from a metal oxide.

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80. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the charge separation layer comprises an inorganic semiconductor.

81. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the charge separation layer comprises an organic semiconductor.

82. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 65 wherein the light energy conversion layer has a light receiving surface, and wherein the light receiving surface is provided with anti-reflection coating to reduce reflective light.

83. (allowed) A multi-layer solid-state device for producing electrical power from light comprising:

an ultra-thin electrically conducting film layer having first and second sides;

a light energy conversion layer mounted on the first side of the ultra-thin film layer and comprising a PS-MIM ~~type~~ photosynthesizer layer;

a thin layer comprising a first type of semiconductor material secured to the second side of the ultra-thin film layer and comprising opposite sides;

a two sided charge separation layer comprising the opposite type of semiconductor material having one side thereof secured to the side of the thin semiconductor layer opposite from the side thereof which is secured to the ultra-thin film layer; and

an ohmic back metal contact secured to the second side of the charge separation layer.

84. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein ~~the~~ a conduction band edge and the thickness of the thin semiconductor layer permit charge carriers from the light energy conversion layer to move to the back contact while preventing current flow in the opposite direction thereby maximizing output power.

85. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the charge separation layer is formed from a material which functions in combination with the thin semiconductor layer and ~~the~~ a conduction band edge to allow charge carriers to move from the light energy conversion layer to the back contact while preventing current flow in the opposite direction to maximize output power.

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86. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the front contact layer comprises an ultra-thin metal film layer having a thickness of between about .5 and about 1000 nm and is formed from a material selected from the group consisting of gold and platinum.

87. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the charge separation layer is formed from a material selected from the group consisting of titanium dioxide, tantalum oxide, and tungsten oxide.

88. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the light energy conversion layer is formed from a material selected from the group consisting of merbromin, 0-phenylxanthene, and metal cyanates.

89. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the light energy conversion layer is formed from a material comprising a thin film semiconductor.

90. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the light energy conversion layer comprises a plurality of different photosensitive means to maximize capture of the incident light spectrum.

91. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the conducting layer is formed from a metal.

92. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the conducting layer is formed from a non-metal conductor.

93. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the conducting layer is formed from a metal oxide.

94. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the charge separation layer comprises an inorganic semiconductor.

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95. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim ~~84~~ 83 wherein the charge separation layer comprises an organic semiconductor.

96. (allowed) The multi-layer solid-state device for producing electrical power from light according to claim 83 wherein the light energy conversion layer has a light receiving surface, and wherein the light receiving surface is provided with anti-reflection coating to reduce reflective light.

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